



Approval #

970020-U

Safety & Buildings Division  
201 East Washington Avenue  
P.O. Box 7969  
Madison, WI 53707

## Wisconsin Material Approval

Material

Tank Compliance Center, Model 700

Manufacturer

Hasstech, Inc.  
6985 Flanders Dr.  
San Diego, CA 92121

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### SCOPE OF EVALUATION

The Tank Compliance Center, Model 700 was evaluated as a form of monthly monitoring for tanks in accordance with **section ILHR 10.61 (4)**, as a form of tightness testing for tanks in accordance with **s. ILHR 10.61 (3)**, and as a method of interstitial monitoring in accordance with **s. ILHR 10.61 (7)** of the current edition of the Wisconsin Administrative Flammable and Combustible Liquids Code.

### DESCRIPTION AND USE

The TCC Model 700 is a combination automatic tank gauging system, sump monitor, interstitial space monitor, and pipeline leak detection system. It includes a console that houses a tank probe interface and a microprocessor for processing the level and temperature data from the tank probe. A series of function keys on the console can be used to display various parameters on a liquid crystal display. These parameters include product and water levels, product temperature, and ullage, as well as other programmable functions such as alarm levels and automatic start times. The same information can be printed on a small dot matrix printer that is located on the front panel. Data may also be obtained via modem. Tests times can be programmed into the unit to last for 2 hours or greater.

Up to 8 tank probes, 8 external monitoring sensors, and 8 LineTite Remote Line Monitor Sensors can be connected to a single console. The system uses tank probes that are based on magnetostrictive principles to measure product and water levels in the tank. The temperature of the product is determined from multiple precise resistance temperature devices that are located on the magnetostrictive probe.

The TCC Model 700 may be used on tanks that contain gasoline, diesel, aviation fuel, #4 fuel oil, waste oil, solvents, and other substances with specific gravity  $>0.6$  and viscosity  $<1500$  cp.

The minimum detectable water level is 0.186 inch. The minimum detectable change in water level is 0.0048 inch, provided this level is above the minimum detectable level.

The interstitial liquid sensors are based on a float-switch-activated reed switch technology. Each sensor can be configured for normally closed or normally open contacts. Sensor models 910, 920, and 950 are all based on working in a normally dry environment and will sense an accumulation of any liquid when the level of the liquid rises to a depth that causes the float switch to trigger and change the status of the reed switch contacts. Sensor model 930 is designed to provide normally closed contacts when its bottom float is in a floating position and the top float is not, which is the standard scenario for a double-wall tank with brine in the interstitial space.

## TESTS AND RESULTS

The performance of the TCC Model 700 was partially determined using the EPA protocol for automatic tank gauging systems. For monthly monitoring, the Model 700 was found to be capable of detecting a 0.2 gallon-per-hour leak, with probabilities of detection and false alarm ( $P_D$  and  $P_{FA}$ ) of 99.9% and 0.1%, respectively, when using a leak declaration threshold of 0.1 gph. For tank tightness testing, the Model 700 was found to be capable of detecting a 0.1 gph leak, with a  $P_D$  of  $>99.6\%$  and a  $P_{FA}$  of  $<0.4\%$  when using a leak declaration threshold of 0.05 gph.

The interstitial liquid sensors were tested according to EPA requirements for alternative protocols, by using applicable sections of standard EPA protocols that have been adapted to the specialized requirements of liquid float-switch sensors.

The pipeline leak detection system is approved under 930014-U.

The EPA test procedures only addressed the issue of the system's ability to detect leaks. The procedures did not address testing the equipment for safety hazards.

## LIMITATIONS OF APPROVAL

Testing shall be done in accordance with the manufacturer's instructions and this approval. In the event of conflicts, the more strict requirement shall govern.

The TCC Model 700 is approved for use as an automatic tank gauging system in conformance with **s. ILHR 10.61 (4) (a)**. For monthly monitoring, the tank shall be at least 50% full.

For tightness testing, the tank shall be at least 95% full, but not overfull, in accordance with **s. ILHR 10.61 (3) (a)**.

The TCC Model 700 is approved for use on tanks with capacities up to 15,000 gallons.

The waiting time between adding any substantial amount of product to the tank and the start of the test shall be at least 2 hours.

The total data collection time for tank tightness testing shall be at least 6 hours. For monthly monitoring, the total data collection time is at least 2 hours.

For equipment that allows a variable leak detection threshold, the threshold shall be set no lower than 0.045 gph for a 2-hour test, and no lower than 0.060 for a 6-hour test.

This approval will be valid through December 31, 2002, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

#### DISCLAIMER

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Reviewed by: \_\_\_\_\_

Approval Date: \_\_\_\_\_ By: \_\_\_\_\_

Sam Rockweiler, P.E.  
Code Development Section  
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